DOI: 10.15584/978-83-8277-356-9_5

The basis for the development of e-learning modules in teaching patient safety: the perspective of nurse educators

Dominika Kohanová[1], Andrea Sollárová[1]

[1] Constantine the Philosopher University in Nitra, Faculty of Social Sciences and Health Care, Department of Nursing, Slovakia

Abstract

Introduction: Safe care provision is a critical global healthcare issue. Nurse educators play a vital role in identifying strengths and weaknesses in patient safety education across academic and clinical settings.

Aim: To explore nurse educators' opinions and experiences with patient safety education in academic and clinical settings.

Materials and methods: Thirteen nurse educators from two nursing faculties participated in the study. Data were collected via an online self-designed survey using Google Forms in February 2024 and analyzed through content analysis.

Results: Three key themes emerged: the interpretation of safe nursing care, teaching patient safety–characteristics and requirements, and reflections on patient safety education.

Conclusions: Integrating patient safety education into nursing curricula and ensuring practical, hands-on learning experiences are essential to prepare students for real-world challenges.

Key words: e-learning modules; nurse educators; nursing students; patient safety; education

Introduction

Patient safety remains a critical global health issue, heavily impacted by shortages of nurses and support staff [1]. An estimated one in ten patients experiences harm during healthcare delivery, with nearly 50% of these cases being preventable [2]. Patient safety focuses on preventing harm to patients and is defined by the World Health Organization (WHO) as "the absence of avoidable harm during the healthcare process" [4]. It involves a framework of culture, processes, behaviours, and technologies designed to reduce risks, prevent errors, and minimize harm [3]. Developing and regularly evaluating a patient safety culture is essential to improving healthcare safety

[3]. Since 1999, organizations like the WHO and the IOM have emphasized the inclusion of patient safety in nursing curricula to equip students with the necessary skills and competencies to ensure safety and reduce errors in clinical practice [4]. Nursing students' ability to provide safe and quality care is significantly influenced by the academic environment [8], where educational institutions aim to prepare students for safe care provision across various clinical settings. However, patient safety education is not systematically included in nursing curricula across the European Union (EU), and disparities exist between theoretical and practical training. E-learning has emerged as an effective method to enhance patient safety education, particularly in the wake of the COVID-19 pandemic, which accelerated its adoption [9]. It incorporates simulation-based methods, such as virtual simulations and interactive scenarios, to develop skills like critical thinking and decision-making [10, 11]. Research shows that e-learning significantly improves patient safety culture [12, 13], often proving more effective than traditional methods [14, 15].

Aim

The study aimed to explore nurse educators' opinions on and experiences with patient safety education in both academic and clinical settings.

Material and methods

A qualitative descriptive study was carried out to meet the study objectives and was approved by the Ethics Committee of the Jessenius Faculty of Medicine in Martin, Comenius University in Bratislava (ref. no. 37/2023). Regarding the sample, two faculties were approached in which nursing students are educated in the bachelor's degree programme. After obtaining consent from both faculties to conduct the research, nurse educators actively involved in teaching clinical subjects in the undergraduate programme were selected using the convenience sampling method. Giving informed consent was a prerequisite for including nurse educators in the sample. A total of 17 nurse educators were approached, of which 13 participated (response rate: 76.47%).

The study was carried out in February 2024 through the Google Forms® platform due to its accessibility and rapid availability of data. The online form included informed consent at the beginning. After giving informed consent, the nurse educators were directed to the list of eleven semi-structured questions on the topic of patient safety education. The questions in interviews were developed based on

reviewed literature, for example [16], and reflected topics such as provision of safe nursing care, or patient safety education in general,

Participant narratives were analyzed using summative content analysis. This approach began with manifest content analysis, quantifying specific words or content to identify patterns without inferring meaning. The analysis then progressed to latent content analysis, interpreting underlying meanings [17]. Data coding was performed line-by-line by two independent reviewers, who assessed similarities and resolved differences to group codes hierarchically. New codes were created to capture the meaning of initial code groups, resulting in ten subthemes and three themes. The process was supported by Atlas.ti software.

Results

Through the analysis of the narratives, three significant themes related to the nurse educators' opinions on and experiences with patient safety education were identified in both academic and clinical settings (Figure 1).

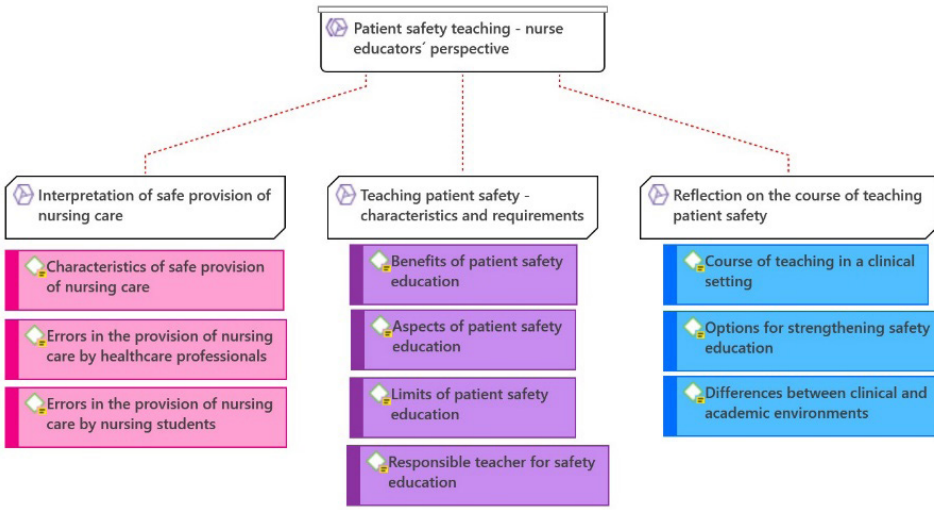

Figure 1. Patient safety education–nurse educators' perspective

Theme 1: Interpretation of safe provision of nursing care

The first theme was synthesized from three subthemes: Characteristics of safe provision of nursing care; Errors in the provision of nursing care by healthcare professionals; and Errors in the provision of nursing care by nursing students.

Subtheme 1: Characteristics of safe provision of nursing care

Nurse educators perceived safe nursing care as adherence to standards, rules, and internal regulations: …*adherence to defined procedures that are part of the internal regulations of healthcare facilities* (P13). They emphasized the importance of staff competencies, critical thinking, and a shared goal: *Safe care is… measures, norms, and patterns of behaviour… to provide the safest and highest quality care for the patient* (P6). Safe care involves individualized, patient-centred care that meets biopsychosocial and spiritual needs beyond the treatment plan (P8) and minimizes harm, adverse events, and errors: *Providing care that prevents or minimizes harm to the patient* (P10).

Subtheme 2: Errors in provision of nursing care by healthcare professionals

In the clinical setting, nurse educators identified several errors in safe care provision, primarily by nurses. Common issues included inadequate patient education, non-compliance with patient rights, and failure to follow procedural standards: *The standard procedure is not always followed…* (P2). Insufficient identification of high-risk patients, such as mobility issues, was also a concern (P11). Overstepping staff competencies further jeopardized care: *Nurses or aides exceed their competencies without apparent reasons…* (P8). Errors were notable in pressure ulcer prevention due to insufficient aids, medication administration with poor record-keeping and management (P9), and fall prevention, hindered by malfunctioning equipment and unsuitable facilities (P11). Communication failures and inappropriate behaviour towards patients, particularly those who are aggressive or confused, were also highlighted (P8, P9). Additionally, staff safety was compromised through practices like mishandling needles and improper patient handling: …*all of this affects nurses as well* (P5). Errors were attributed to time constraints, inattention, and lack of interest among healthcare personnel: *Mistakes occur due to lack of time or inattention* (P2).

Subtheme 3: Errors in provision of nursing care by nursing students

Nurse educators frequently observed errors and mistakes in nursing students' provision of safe care: …*not realizing the risks associated with unprofessionally provided nursing care* (P7). Common issues included inadequate skills and knowledge, particularly in aseptic principles, medication substitutions, incorrect dosages, and poor hand hygiene. Communication errors were also highlighted, involving insufficient interaction with patients, mentors, and other healthcare professionals: …*inadequate communication with the patient, mentor, and other healthcare professionals* (P9). Students often modelled their behaviour on nurses and mentors who failed to comply with care standards: *Adopting from nurses–the identification of patients*

by room and bed number, instead of requesting full patient details… (P11). Similarly, students were observed mimicking improper techniques, as reflected in the statement: *Nurse as a role model, the nurse does not take sterile swabs, why should I?* (P8). Errors were most common in specific nursing tasks, often due to students' lack of focus and interest. Additional concerns included unkempt appearance, a focus on task completion rather than patient-centred care, and overconfidence in their abilities.

Theme 2: Teaching patient safety–characteristics and requirements

The second theme was synthesized from four subthemes: Benefits of patient safety education; Limits of patient safety education; Aspects of patient safety education; and Responsible teacher for safety education.

Subtheme 1: Benefits of patient safety education

Nurse educators highlighted several benefits of patient safety education, particularly in subjects focused on nursing management. One participant emphasized its role in protecting both patients and nurses: *There are countless benefits… safely provided healthcare, from patients' perspective, speeds up and improves their treatment* (P7). Another key benefit identified was improved student preparedness for clinical practice: *More information, better preparation for practice in the clinical environment…* (P3), further supported by the statement: *The student receives information about possible risks and is prepared to provide quality nursing care* (P10). Additionally, patient safety education was noted to raise awareness among students about recognizing safe and unsafe practices in nursing care (P5).

Subtheme 2: Limits of patient safety education

Nurse educators identified several limitations in patient safety education, with inadequate attention being a significant concern. They noted that educators' readiness to teach patient safety could be a challenge: *Can educators adequately 'deliver' patient safety issues? Do we have sufficient knowledge in the field of patient safety? Are students interested?* (P5). Additionally, patient safety is often not taught as a standalone subject but integrated into other courses, limiting its focus: *…that education in patient safety does not universally occur as a separate subject…* (P6). A lack of resources was another recurring issue. In academic settings, this includes insufficient interactive tools, such as e-learning materials, videos, and case studies, as well as a shortage of professional literature in Czech and Slovak languages (P8). Similarly, clinical practice suffers from limited material and technical resources (P7), including inadequate personal protective equipment (P2).

Subtheme 3: Aspects of patient safety education

Nurse educators emphasized that patient safety education should cover both general and specific topics. General topics include patient safety characteristics, safety culture, assessment tools, and influencing factors: …*characteristics of patient safety and safety culture, tools that can be used in their assessment*… (P8). Specific topics should address care for confused or aggressive patients and adherence to aseptic techniques (P9). A primary focus should be on preventive measures to reduce risks and enhance safety: …*risks endangering patient safety and their prevention* (P3), along with safe care practices, errors in nursing, and unintentional harm (P1). Education should also integrate sociocultural aspects, such as communication, evidence-based practice (EBP), teamwork, adverse event management, and fostering a blame-free environment (P6). Reporting adverse events and overcoming reporting barriers were also highlighted as key topics (P5). Staff safety is another essential component, addressing issues like the prevention of nosocomial infections, consistent use of personal protective equipment, and reducing occupational risks (P8).

Subtheme 4: Responsible teacher for safety education

Nurse educators largely agreed on the key participants in patient safety education across academic and clinical settings. In the academic environment, nurse educators should play a central role, with one participant emphasizing the integration of patient safety into all nursing-related topics: …*it should concern all teachers in the academic environment involved in nursing education and care* (P11). Additionally, experts in patient safety or professionals publishing in the field were suggested as valuable contributors: *A person who publishes in the field of patient safety* (P13), or *A researcher-nurse expert in patient safety* (P5). Some participants highlighted the importance of qualifications, suggesting educators with a Ph.D. in nursing and clinical experience (P8). In the clinical environment, the involvement of specialized nurses, mentors, ward nurses, and head nurses was emphasized: *Head nurses and ward nurses… should provide training for students on patient safety within healthcare facilities* (P11). Participants also suggested that nurse mentors should have advanced practice qualifications to effectively educate students (P8).

Theme 3: Reflection on the course of patient safety education

The third theme was synthesized from three subthemes: Course of teaching in a clinical setting; Options for strengthening safety education; and Differences between clinical and academic environments.

Subtheme 1: Course of teaching in a clinical setting

Nurse educators described patient safety education in the clinical setting as building on theoretical preparation and simulated learning: …*reinforcing skills related to patient safety in clinical conditions* (P2). Shadowing mentors and observing their behaviour was highlighted as crucial (P6). Education focuses on adverse events and key safety aspects (P8), with practical demonstrations at the bedside offering students opportunities to address real-life situations under mentor supervision: …*students are questioned about possible risks to patient safety* (P11). Students also learn ward-specific routines and measures (P10). However, challenges include large patient loads and limited individual attention, often resulting in a focus on error prevention rather than comprehensive learning: …*the mentor tries to prevent potential risks and errors* (P8). Some patient safety issues were not consistently addressed or explained in depth (P9), highlighting the need for more structured and focused clinical education.

Subtheme 2: Options for strengthening safety education

To strengthen patient safety education in undergraduate nursing programs, nurse educators emphasized the importance of familiarizing students with care standards, thorough preparation, and the acquisition of practical skills alongside theoretical knowledge: *Thorough practice of nursing activities in simulated conditions with subsequent reinforcement in clinical conditions under the guidance of a mentor* (P2). They suggested introducing dedicated courses, such as a subject on safe nursing care or broader safety issues, ideally spanning multiple semesters: …*a two-semester course on the basis of which students could build the knowledge necessary for clinical practice* (P8). Educators also highlighted the need for specialized training for themselves in patient safety topics, including courses and seminars on areas like managing aggressive patients and fall prevention (P7). Interactive teaching methods, such as problem-based learning, case studies, and workshops, were recommended to enhance student engagement: …*use interactive teaching methods for this issue* (P9). Effective communication with mentors and peers, the use of critical thinking, and tools like the SBAR method were also deemed essential (P12).

Subtheme 3: Differences between clinical and academic environments

A key difference in patient safety education between academic and clinical environments lies in the ability to conduct practical demonstrations directly at the bedside in the clinical setting. This environment allows students to interact with real patients and understand the risks of improper procedures: …*the student comes into personal contact with the patient and is thus forced to realize the deeper*

significance of the risk of providing nursing care when procedures are not followed (P7). It also enables students to address immediate situations and apply theoretical knowledge in practice (P6). Clinical education is seen as a continuation of the foundation established in the academic environment, allowing students to perceive real-world implications of insufficient patient safety or even witness and address adverse events: …*education in the clinical setting should only build on the knowledge gained in academic education* (P8). Conversely, the academic environment focuses on theory, lectures, simulated teaching, and case studies but often lacks the realism and responsibility inherent in clinical settings (P9). Nurse educators highlighted several challenges, including inadequate attention from mentors in the clinical setting (P2), difficulty linking academic knowledge to specific procedures and patient conditions (P11), and the limited application of evidence-based practice (EBP) in real-world settings (P12).

Discussion

The findings of the present study focused on the interpretation of the safe provision of nursing care, as the first identified theme. The nurse educators characterized safe provision of nursing care, highlighting the importance of delivering care according to nursing standards, rules, and norms, which is in line with the recommendations for quality and safe education for nursing students [18, 19]. This aligns with the principles of evidence-based practice in nursing reflecting research-based guidelines and best practices [18]. This understanding of safe nursing care provision emphasizes the importance of adherence to defined procedures and development of staff competencies [20]. Nurse educators play a crucial role in instilling the characteristics of safe provision of nursing care among nursing students [21]. Furthermore, they recognized that even experienced healthcare professionals can make mistakes in the provision of nursing care. It is important to acknowledge that errors can occur in any healthcare setting despite the best efforts to provide safe care [22]. This highlights the need for a culture of openness, transparency, and continuous learning within healthcare organizations [23]. Addressing errors and near-misses through reporting systems and root cause analysis can contribute to improving patient safety [24]. Furthermore, the study emphasized the importance of teamwork and communication in ensuring safe nursing care provision. Effective communication between healthcare professionals, including nurses, physicians, and other members of healthcare teams, is crucial to prevent errors and promote patient safety [25]. Furthermore, nurse educators highlighted the importance of

addressing potential errors and mistakes made by nursing students during their education and training. The findings highlight the importance of nurse educators in preparing future nurses to navigate the complexities of healthcare care delivery and promote patient safety. Nurse educators play a crucial role in teaching error prevention, fostering a culture of openness and transparency, and focusing on the importance of teamwork and effective communication [26, 27]. They model professional behaviour, facilitate critical thinking and problem-solving skills, and promote a patient-centred approach to care [26, 28]. Furthermore, strong supervision, support, and guidance from nurse educators are needed to ensure that nursing students are equipped with the necessary knowledge and skills to provide safe and competent care [29]. In general, nurse educators play a vital role in shaping the nursing workforce to contribute to a safer healthcare environment through continuous learning and improvement [26].

The study highlights the characteristics and benefits of patient safety education, emphasizing its role in improving patient outcomes, enhancing nurse readiness, and fostering a culture of safety. Integrating theoretical knowledge with practical application enables nurses to deliver care more efficiently, adhere to standards, utilize care plans, and reinforce nursing diagnostics [18, 30, 31, 32]. However, patient safety education faces significant challenges, including insufficient attention, limited resources, and a lack of qualified educators [33]. Additionally, inadequate clinical resources and failure to address nursing mistakes hinder effective learning [31]. These findings underscore the need for comprehensive support and resources to strengthen patient safety education.

Nurse educators identified a broad spectrum of topics for patient safety education, spanning general principles to specific preventive measures. Education should encompass clinical and sociocultural factors influencing patient safety, emphasizing risk minimization, adverse event prevention, communication, evidence-based practice, teamwork, and incident reporting [19, 20, 33]. Staff safety is also integral, highlighting the link between patient and healthcare worker well-being [20]. Comprehensive training requires addressing these diverse areas to prepare nursing students effectively. Both academic and clinical settings benefit from involving knowledgeable and experienced educators. While nurse educators play a central role in academic settings, contributions from patient safety experts and those with relevant research or clinical experience are valuable [33]. In clinical environments, nurse specialists, mentors, ward nurses, and head nurses are key educators. Regardless of the setting, educators must possess both theoretical knowledge and practical skills to effectively teach patient safety [31].

Furthermore, the findings of this study illustrate the reflection on the course of patient safety education, as the third and last identified theme. The nurse educators outlined the progression of patient safety education in clinical settings, highlighting its roots in theoretical preparation, simulated education, and hands-on experiences such as shadowing mentors. The emphasis is on practical aspects of safety, including hygiene, patient mobilization, medication administration, and prevention of adverse events. Although clinical education offers advantages such as direct bedside demonstrations and reinforcement of acquired skills, challenges such as high patient volumes and limited individualized attention can hinder effective learning [19, 20, 33]. Therefore, it is important to improve patient safety education. The nurse educators in the present study suggested various strategies, including introducing dedicated courses on safe nursing care, increasing practical training, and providing nurses with information on patient safety. Interactive teaching methods, smaller student groups, and regular audits during nursing procedures are also recommended [13]. Collaboration with internal patient safety systems and the development of evidence-based standards are key strategies for improving patient safety in nursing care. A multifaceted approach is required, beginning with interprofessional education, which provides nursing students with opportunities to learn alongside other healthcare disciplines, fostering teamwork and understanding of collaborative roles in patient care [16]. Simulation-based learning is another essential strategy, allowing students to practice clinical skills and decision-making in a controlled, risk-free environment, building their confidence and competence [20]. Integrating quality improvement initiatives into nursing education and practice is also crucial. This approach encourages students to critically analyze healthcare systems, identify areas for improvement, and adopt proactive risk assessment and mitigation practices [13, 32]. Additionally, mentorship programs for nursing students offer essential guidance and support, helping them bridge the gap between theoretical knowledge and practical application. Under the mentorship of experienced nurses, students can develop the skills and confidence needed to deliver safe, high-quality care [27, 32].

Conclusions

This study underscores the critical role of patient safety education in nursing, highlighting nurse educators' perspectives on its significance. The first theme emphasizes safe nursing care, focusing on adherence to standards and error prevention, while identifying common mistakes among healthcare professionals and

students, such as inadequate education and non-compliance. The second theme explores the benefits of patient safety education, despite challenges like insufficient attention and limited resources. To address these issues, education should prioritize prevention and involve knowledgeable educators from both academic and clinical settings. The third theme advocates for curriculum development and interactive teaching methods, emphasizing practical demonstrations and collaboration to bridge gaps between academic and clinical environments. Implications for nurse educators include developing comprehensive curricula, employing interactive approaches, fostering continuous professional development, and collaborating with healthcare professionals. Nurse educators play a pivotal role in shaping competent nurses and fostering a culture of safety in healthcare.

Funding

The present study was supported by the Cultural and Educational Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic [the KEGA Project No. 040UK-4/2023 Safe Provision of Nursing Care].

References

1. Thompson C, Sansoni J, Morris D, Capell J, Williams K. Patient reported outcome measures: An environmental scan of the Australian health care sector. Sydney: Australian Health Services Research Institute, University of Wollongong. 2016.
2. Kossaify A, Hleihel W, Lahoud JC. Team-based efforts to improve quality of care, the fundamental role of ethics, and the responsibility of health managers: monitoring and management strategies to enhance teamwork. Public Health. 2017;153:91–98.
3. Institute of Medicine (US) Committee on Data Standards for Patient Safety. Aspden P, Corrigan JM, Wolcott J, Erickson SM, editors. Patient safety: achieving a new standard for care. Washington (DC): National Academies Press (US). 2004.
4. World Health Organization. Patient safety. 2022. Retrieved from: https://www.euro.who.int/en/health-topics/Health-systems/patient-safety/patient-safety (23.01.2022).
5. Alquwez N, Cruz JP, Almoghairi AM, Al-Otaibi RS, Almutairi KO, Alicante JG, Colet PC. Nurses' Perceptions of Patient Safety Culture in Three Hospitals in Saudi Arabia. J Nurs Scholarsh. 2018;50(4):422–431.
6. Colet PC, Cruz JP, Cacho G, Al-Qubeilat H, Soriano SS, Cruz CP. Perceived Infection Prevention Climate and Its Predictors Among Nurses in Saudi Arabia. J Nurs Scholarsh. 2018;50(2):134–142.
7. Mansour M. Factor analysis of nursing students' perception of patient safety education. Nurse Educ Today. 2015;35(1):32–37.
8. Christensen L. Are clinical instructors preventing or provoking adverse events involving students: A contemporary issue. Nurse Educ Today. 2018;70:121–123.

9. Bhute VJ, Inguva P, Shah U, Brechtelsbauer C. Transforming traditional teaching laboratories for effective remote delivery—A review. Educ Chem Eng. 2021;35:96–104.
10. Ryall T, Judd BK, Gordon CJ. Simulation-based assessments in health professional education: a systematic review. J Multidiscip Healthc. 2016;9:69–82.
11. Blevins S. The impact of simulation on patient care. Medsurg Nurs. 2014;23(2):120–121.
12. Mahmodi Shan G, Royani Z, Kord F, Kazemi SB, Ghana S, Rahimian S et al. Effect of in-person and e-training on nurse managers' perception of patient safety culture in hospitals of the Golestan Province, Iran. jcbr. 2019;3(1):34–39.
13. Pakzad N, Norouzi K, Fallahi Khoshknab M, Norouzi M. A Comparison of the effect of virtual and lecture-based patient safety education on patient safety culture among nurses. Qom Univ Med Sci J. 2016;10(9):27–34.
14. Barteit S, Guzek D, Jahn A, Bärnighausen T, Jorge MM, Neuhann F. Evaluation of e-learning for medical education in low- and middle-income countries: A systematic review. Comput Educ. 2020;145:103726.
15. Najafi Ghezeljeh T, Karimpour R, Omrani S, Haghani S, Emami A. The effects of e-learning on patient safety culture in emergency nurses. J Crit Care Nurs. 2021;7(3):215–226.
16. Shin SH, Baek OJ. Experiences of patient safety education and factors affecting the willingness to participate in patient safety in undergraduate nursing students in South Korea. Healthcare (Basel). 2023;12(1):54.
17. Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. Qual Health Res. 2005;15(9):1277–1288.
18. Cronenwett L, Sherwood G, Barnsteiner J, Disch J, Johnson J, Mitchell P et al. Quality and safety education for nurses. Nurs Outlook. 2007;55(3):122–131.
19. Lee SE, Dahinten VS, Do H. Patient safety education in pre-registration nursing programs in South Korea. Int Nurs Rev. 2020;67:512–518.
20. Bedgood AL, Mellott S. The role of education in developing a culture of safety through the perceptions of undergraduate nursing students: An integrative literature review. J Patient Saf. 2018.
21. Lee SE, Morse BL, Kim NW. Patient safety educational interventions: A systematic review with recommendations for nurse educators. Nurs Open. 2022;9(4):1967–1979.
22. Vikan M, Haugen AS, Bjørnnes AK, Valeberg BT, Deilkås ECT, Danielsen SO. The association between patient safety culture and adverse events – a scoping review. BMC Health Serv Res. 2023;23(1):300.
23. Zhao X, Shi C, Zhao L. Nurses' intentions, awareness and barriers in reporting adverse events: a cross-sectional survey in tertiary hospitals in China. Risk Manag Healthc Policy. 2022;15:1987–1997.
24. Molina FJ, Rivera PT, Cardona A, Restrepo DC, Monroy O, Rodas D et al. Adverse events in critical care: Search and active detection through the Trigger Tool. World J Crit Care Med. 2018;7(1):9–15.
25. Polis S, Higgs M, Manning V, Netto G, Fernandez R. Factors contributing to nursing teamwork in an acute care tertiary hospital. Collegian. 2017;24(1):19–25.
26. Ginsburg L, Castel E, Tregunno D, Norton PG. The H-PEPSS: An instrument to measure health professionals' perceptions of patient safety competence at entry into practice. BMJ Qual Saf. 2012;21(8):676–684.
27. Hwang JI, Yoon TY, Jin HJ, Park Y, Park JY, Lee BJ. Patient safety competence for final-year health professional students: Perceptions of effectiveness of an interprofessional education course. J Interprof Care. 2016;30(6):732–738.
28. Robson W, Clark D, Pinnock D, White N, Baxendale B. Teaching patient safety and human factors in undergraduate nursing curricula in England: A pilot survey. Br J Nurs. 2013;22(17):1001–1005.

29. Mariani B, Cantrell MA, Meakim C, Jenkinson A. Improving students' safety practice behaviors through a simulation-based learning experience. J Nurs Educ. 2015;54(3):S35–38.
30. Wu AW, Busch IM. Patient safety: A new basic science for professional education. GMS J Med Educ. 2019;36(2):Doc21.
31. Tella S, Liukka M, Jamookeeah D, Smith NJ, Partanen P, Turunen H. What do nursing students learn about patient safety? An integrative literature review. J Nurs Educ. 2014;53(1):7–21.
32. Myers JS, Wong BM. Measuring outcomes in quality improvement education: Success is in the eye of the beholder. BMJ Qual Saf. 2019;28(5):345–348.
33. Mansour MJ, Al Shadafan SF, Abu-Sneineh FT, AlAmer MM. Integrating patient safety education in the undergraduate nursing curriculum: A discussion paper. Open Nurs J. 2018;12:125–132.